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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,814	02/27/2002	Joseph Francis Mann	01AB162	6548
63122	7590	07/14/2006	EXAMINER	
ROCKWELL AUTOMATION, INC./BF 1201 SOUTH SECOND STREET MILWAUKEE, WI 53204			CHEN, TSE W	
			ART UNIT	PAPER NUMBER
			2116	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/083,814	Applicant(s) MANN ET AL.	
	Examiner Tse Chen	Art Unit 2116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 9, 2006 has been entered.

Claim Objections

2. Claims 1 and 12 are objected to because of the following informalities: "an internal system storage structure" should be "the at least one internal system storage structure"; "parameters" should be "external memory setup data". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-6, 10-12, 14-16, 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Fullam et al., US Patent 5802550, hereinafter Fullam.

5. In re claim 1, Fullam discloses an integrated processor system [fig.3] comprising:

- A common integrated circuit substrate [col.6, ll.60-63] holding each of:
 - A processing unit for performing arithmetic and logical operations [52].

- At least one internal system storage structure selected from the group consisting of caches, buffers, and registers [54].
 - An external memory interface [col.6, ll.55-57] for connecting to an external memory [58] not on the common substrate.
 - Wherein the processing unit [52] executes at least a portion of a bootstrap program [boot process] to determine set up external memory setup data [default, configuration data] needed to communicate with different types of external memory while using the at least one internal system storage structure for temporary storage without access to external memory [col.7, l.27 – col.8, l.6; default data works with any type of external memory].
6. As to claims 3 and 14, Fullam discloses a memory interface [56] for communicating with external memory [58] and wherein the processing unit [52] executes at least a portion of the bootstrap program [boot process] to provide for the acquisition of external memory setup data [default from 54] required for the memory interface to initiate communication with external memory [col.7, ll.39-50].
7. As to claims 4 and 15, Fullam discloses, a network interface and wherein the processing unit executes at least a portion of the bootstrap program to provide for the acquisition of the external memory setup data through a network connection [col.7, ll.39-50; configuration data stored in external 64 accessed through network].
8. As to claims 5 and 16, Fullam discloses, wherein the external memory includes non-volatile memory [64] and volatile memory [58] and wherein the processing unit executes at least a portion of the bootstrap program to provide for the acquisition of the

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external memory setup data for the external volatile memory from the external non-volatile memory [col.3, ll.59-63; col.7, ll.39-50].

9. As to claim 6, Fullam discloses, comprising wherein the external non-volatile memory is flash memory [col.7, ll.41-42].

10. As to claims 10 and 20, Fullam discloses, wherein the processing unit further executes at least a portion of the bootstrap program to store the memory setup data in the memory interface [54 part of 56] and then to execute a program contained in external memory [col.1, ll.25-50; col.7, l.38 – col.8, l.19].

11. As to claims 11 and 21, Fullam discloses, wherein the memory setup data is selected from the group consisting of: memory type as static or dynamic, memory speed, memory size, memory parity, and memory timing [col.3, ll.47-58; col.7, ll.11-26; col.9, ll.5-7].

12. In re claim 12, Fullam discloses each and every limitation of the claim, as discussed above in reference to claim 1. Fullam discloses the integrated processor system; therefore, Fullam discloses the method of operating the integrated processor system.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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14. Claims 2, 7, 13, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fullam as applied to claims 1 and 3 above, and further in view of Kao et al., US Patent 4720812, hereinafter Kao.

15. Fullam taught each and every limitation as discussed above. Fullam did not disclose explicitly communicating electrical signals with non-memory external devices.

16. In re claims 2 and 13, Kao disclose an integrated processor system [fig.3] comprising interface circuits [inherently some interface circuit in the broadest interpretation is needed for communication] for communicating electrical signals [i/o control signals] with non-memory external devices [peripheral devices] [col.6, ll.19-40].

17. It would have been obvious to one of ordinary skill in the art, having the teachings of Fullam and Kao before him at the time the invention was made, to modify the integrated processor system taught by Fullam to include the well known teachings of Kao, as the use of non-memory external devices is very well known and suitable for use with the integrated circuit of Fullam. One of ordinary skill in the art would have been motivated to make such a combination as it provides a well known way to expand an integrated circuit's peripheral functions.

18. In re claims 7 and 17, Fullam discloses, wherein the processing unit includes an address translation table mapping processing unit addresses to addresses of the external memory [col.6, l.39 – col.7, l.10] and Kao discloses, wherein the processing unit executes at least a portion of the bootstrap program to make a temporary address translation table in a buffer memory [col.7, ll.37-42] so as to make the cache memory [56] available for temporary storage [col.9, ll.5-42].

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19. It would have been obvious to one of ordinary skill in the art, having the teachings of Fullam and Kao before him at the time the invention was made, to modify the integrated processor system taught by Fullam to include the teachings of Kao, in order to obtain the claimed integrated circuit. One of ordinary skill in the art would have been motivated to make such a combination as it provides a way to increase the address space accessible by the processor [Kao: col.3, ll.49-63].

20. Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fullam as applied to claim 1 above, and further in view of Devereux, US Patent 6671779.

21. In re claims 8 and 18, Fullam taught each and every limitation as discussed above. Fullam discloses the integrated processor system wherein the system storage structure is a cache memory [54] and wherein the processing unit executes at least a portion of the bootstrap program to read arbitrary data into the cache memory [col.7, ll.39-50]. Fullam did not disclose locking the cache memory against further reading or writing to external memory.

22. Devereux discloses an integrated processor system [fig.3] wherein the system storage structure is a cache memory [30'] and wherein the processing unit [10] executes at least a portion of the bootstrap program to read arbitrary data [data values for interrupts] into the cache memory and then to lock the cache memory against further reading or writing to external memory [80] so that it may be used as variable storage for further execution of the bootstrap program [col.7, ll.36-49].

23. It would have been obvious to one of ordinary skill in the art, having the teachings of Fullam and Devereux before him at the time the invention was made, to modify the integrated processor system taught by Fullam to include the teachings of Devereux, in

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order to obtain the claimed integrated processor system. One of ordinary skill in the art would have been motivated to make such a combination as it provides speed benefits without data corruption [Devereux: col.7, ll.36-49].

24. Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fullam as applied to claim 3 above, and further in view of Little et al., US Patent 6272637, hereinafter Little.

25. In re claims 9 and 19, Fullam taught each and every limitation of the claim, as discussed above in reference to claim 3. Fullam discloses wherein the processing unit executes at least a portion of the bootstrap program to store the memory setup data in the memory interface [54 part of 56] [col.1, ll.25-50; col.7, l.38 – col.8, l.19]. Fullam did not disclose explicitly loading additional programs for execution into external memory.

26. Little discloses an integrated processor system [fig.3] wherein the processing unit loads additional programs for execution into external memory [130] [col.5, ll.39-51].

27. It would have been obvious to one of ordinary skill in the art, having the teachings of Fullam and Little before him at the time the invention was made, to modify the integrated processor system taught by Fullam to include the teachings of Little, in order to obtain the claimed integrated processor system. One of ordinary skill in the art would have been motivated to make such a combination as it provides secured processing of information [Little: col.1, ll.39-59].

28. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fullam as applied to claim 1 above, and further in view of Gupta, US Patent 6577158.

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29. In re claims 22 and 23, Fullam taught each and every limitation as discussed above. Fullam did not disclose explicitly the bootstrap program is stored in a bootstrap memory also on the common integrated circuit substrate.

30. Gupta discloses an integrated processor system [fig.1] wherein the bootstrap [startup] program is stored in a bootstrap memory [140] also on the common integrated circuit substrate [105] [col.5, ll.20-31].

31. It would have been obvious to one of ordinary skill in the art, having the teachings of Fullam and Gupta before him at the time the invention was made, to modify the integrated processor system taught by Fullam to include the teachings of Gupta, in order to obtain the claimed integrated processor system. One of ordinary skill in the art would have been motivated to make such a combination as it reduces the size and power consumption as well as manufacturing costs [Gupta: col.1, ll.27-38].

Response to Arguments

32. Applicant's arguments dated June 9, 2006 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tse Chen whose telephone number is (571) 272-3672.


The examiner can normally be reached on Monday - Friday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (571) 272-3670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tse Chen
June 20, 2006


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